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REVIEW OF PER CAPITA INCOME AS THE PRINCIPAL MEASURE  
OF CAPACITY TO PAY

I. SUMMARY

1. In accordance with the terms of reference of the Committee on Contributions, which were established in the rules of procedure of the General Assembly, the expenses of the United Nations should be apportioned "broadly according to capacity to pay." <sup>1/</sup> Comparative estimates of national income for the period under review have been used by the Committee as a basic guide for the measurement of such capacity.

2. The conventional national income aggregates converted into a single currency unit have also been commonly used for comparing levels of living or welfare of different countries. In this sense there is an implicit assumption in the work of the Committee that a country's capacity to pay towards the expenses of the United Nations stands roughly in the same relative order as the country's level of living or well-being.

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<sup>1/</sup> Rules of Procedure of the General Assembly (United Nations publication, Sales No. E.74.I.6), pages 35 and 36, rule 160.

3. There has been increasing criticism in recent years of the use of the conventional national income aggregate for measuring the levels of living or welfare of the population as well as for measuring a country's capacity to pay towards the expenses of international organizations. <sup>2/</sup>

4. Conventional national accounts were not designed with such a purpose in mind. They were aimed at the analysis of production and monetary income flows. From the great depression of the 1930s through the end of the United Nations First Development Decade, the main concern of economic policy was expanding output. It was generally taken as obvious that "more" was also "better", without much regard for how the increased output was achieved, what it included, or how it was distributed.

5. The single aggregate of national income as a measure of capacity to pay often tends to camouflage economic realities, such as problems of technology, industry, infrastructure, agriculture, trade, literacy, to mention but a few, and the general aspect of development. The concept of development has briefly been defined as growth plus change. A country's capacity to pay viewed from the angle of its level of development should in principle be related to its achievement of goals and to its instruments (capital equipment, schools, hospital beds, etc.). However, development also implies a process of undergoing certain structural changes which are associated in practice with the process of advancing higher values (health, education, employment, etc.) and the process of building up certain instrumentalities and means. In this regard, the aggregate of national income does not measure structural and distributional aspects of development nor does it adequately cover social components. In theory, therefore, building up a new general index of development which covers both economic and social as well as value and structural aspects of development would appear to provide in most cases a more reasonable indication of a country's overall level of development than does per capita national income.

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<sup>2/</sup> Official Records of the General Assembly, Twenty-ninth Session, Plenary Meeting, 2280th meeting, pp. 12-20; "Economic Statistics, System of National Accounts and Balances. The feasibility of welfare-oriented measures to complement the national accounts and balances." Report of the Secretary-General (E/CN.3/477), pp. 4-10; and Report of the Expert Group on Welfare-oriented Supplements to the National Accounts and Balances and Other Measures of Levels of Living, New York, 22-26 March 1976 (ESA/STAT/AC.4/5), pp. 2-4.

6. Applying to countries as members of the world community a parallel from national taxation levied on a country's citizens, it is argued that net income should be supplemented by net worth as a measure of capacity to pay. This is particularly important in the case of countries which experience wide fluctuations in their annual incomes over time, a phenomenon observed with increasing frequency in recent years. This is because a country which has a well-developed infrastructure or has a favourable position against the rest of the world, is certainly better off from capacity to pay point of view than a country, with the occasional same income, but which has a narrow structural foundation for productive capacity or which is burdened with external indebtedness.

7. As a result of these conceptual inadequacies of the national income aggregate to measure capacity to pay, level of living or welfare, international comparisons among countries based on this aggregate are subject to a number of weaknesses. These are discussed in Section II "Conceptual weaknesses of international comparisons among countries based on the national income aggregate as the principal measure of capacity to pay". The Section is subdivided into: (1) Influence of accumulated wealth, (2) Environment, subjective factors and value judgements, (3) Essential and non-essential income components, (4) Diminishing utility of income components, and (5) Unevenness of income distribution. One of the methods for remedying these weaknesses discussed in the literature is to combine a number of other indicators with per capita national income to produce a single synthetic or composite indicator.

8. Section III "Synthetic or composite indicators of capacity to pay" contains a brief review of the possible use of such synthetic or composite indicators for measuring the levels of living of the population or a country's capacity to pay. Here the conclusion appears to be that in view of lack of general expert agreement on the concept as well as lack of relevant and reliable statistics, there is no one satisfactory across-the-board quantitative indicator which can serve as a substitute for national income. At least for the present there appears to be no viable alternative to national income as the principal measure of capacity to pay.

9. Having recognized the main conceptual inadequacies of the national income aggregate to measure capacity to pay but at the same time having realized that this is the sole available common basis for all countries for the determination of the scale of contributions, one needs to be fully aware of any further weaknesses from which the basic guide suffers. Section IV "Statistical weaknesses of international

comparisons among countries based on national income" deals with purely statistical problems which arise in the context of the Committee's practice and is intended to bring to the Committee's attention the main deficiencies of the data used in its work. The Section is sub-divided into: (1) Exchange rate disparities, (2) Non-market income, and (3) Understatement of income.

10. In these circumstances it seems necessary to continue the Committee's past practice of examining supplementary criteria such as excessive inflation, external public debt servicing in relation to export earnings, international reserves of hard currencies and other aspects of the economic situation of countries.

## II. CONCEPTUAL WEAKNESSES OF INTERNATIONAL COMPARISONS AMONG COUNTRIES BASED ON THE NATIONAL INCOME AGGREGATE AS THE PRINCIPAL MEASURE OF CAPACITY TO PAY

### (1) Influence of Accumulated Wealth

11. This weakness deals with failure to take cognizance of the size of a country's wealth (natural resources, accumulated public and private tangible and intangible capital, and consumer durables), of its real income in the form of continued enjoyment of that wealth, and of the influence of the proceeds from possible disinvestment upon its people's level of living when added to current income.

12. For recent years, some oil exporting countries have shown higher per capita incomes than a number of mature developed countries. These oil exporting countries, whose recent incomes shot up dramatically because of a very sharp rise in the price of just one internationally traded commodity, do not have the per capita wealth to be found in any of the mature developed countries. And it is equally true that the economic well-being of the inhabitants of the mature developed countries is higher than that of the average inhabitant of an oil exporting country whose income has suddenly shot up. A nation's accumulated wealth, as well as its current annual income, could be jointly considered to be the influencing factors in the nation's capacity to pay.

13. In the mature developed countries exist capital assets developed over hundreds of years. Over the centuries their peoples diverted income from consumption to build many cities, bridges, transportation and communication facilities, public buildings, parks, monuments, roads, hospitals and schools, to drain marshes, to excavate archaeological ruins, to clear fields, to terrace hillsides and to establish other

infrastructure. The oil exporting countries whose incomes have shot up suddenly will need to refrain from devoting to consumption large portions of their national incomes for a great many years before they can hope to catch up with the mature developed countries in terms of the magnitude of the latter's accumulated wealth.

14. The weakness of per capita national income to accurately measure capacity to pay seems even greater when one bears in mind the fact that in the case of the oil exporting countries, the recent high national incomes have as their source a single commodity which is finite and non-renewable. If the new high income were derived from numerous items of wealth rather than from a single resource, the prospects for sustained future high incomes would seem broad based and secure. Also with a finite and non-renewable source of income, the oil exporting countries' capacity to devote large portions of their current incomes to building of infrastructure is severely limited, since such building of infrastructure requires a great many years. Even with a wide range of unlimited and renewable sources of income, it could take a country hundreds of years to develop infrastructure especially if the country starts from a low development base.

## (2) Environment, Subjective Factors and Value Judgements

15. Inhabitants of cold regions spend large sums of money for artificial heat and warm clothing. Those in warmer regions enjoy the same comfort without those outlays. Thus, per capita incomes in the cold regions might stand at high levels without the inhabitants enjoying a higher degree of well-being. Nor do per capita incomes measure the extent to which habit and custom may have rendered unnecessary or undesirable among some peoples, income items considered essential or desirable among others. If an inhabitant of a tropical area needs no more than meagre clothing to protect him from the elements and the mores of his community are such that with this meagre clothing he feels adequately clothed, his feeling of well-being is not lower than that of the inhabitant of a region where either climate or convention require more clothing to cover his body.

16. National incomes, in whatever currency, do not take into account differences between countries in hours of work, length of vacations, or working conditions. An annual payment of \$100,000 to a sportsman for a few months of play makes the same quantitative addition to the national income of another country when paid to fifty

miners digging coal in damp, underground shafts eight hours a day, eleven months of the year.

17. Nor do national income estimates distinguish between countries on the basis of the value judgements the countries apply in utilizing their resources. Just as five dollars for whiskey bought by an alcoholic has the same effect on national income as five dollars for milk to nourish an infant, so at the international level \$10 billion for nuclear weapons swell the national income in one country to the same degree as \$10 billion devoted by another country to schools and hospitals.

18. National income estimates likewise make no attempt to weigh differences in tastes or conscious needs. The absence of an item in the national income of one area, because the people do not want it, renders smaller the national income in the same amount as in the case of another area, where the people wanted it but could not afford it.

### (3) Essential and Non-essential Income Components

19. Comparative per capita income estimates take no cognizance of the essentiality of income components. It is well known that as the income of a family increases, the percentages expended for essentials falls, and, by the same token, the percentage spent on non-essentials mounts. In a low income country the percentage of total income spent on such essential items as food, clothing, and shelter will be greater than in an economically advanced country. If one concedes that essentials made a more substantial contribution to well-being than non-essentials, it follows that the degree of real income difference between the developed and less developed countries does not correspond to differences suggested by comparative per capita national income figures.

20. Let us suppose that the per capita national income of country "X" is \$500 compared to a per capita income in country "Y" of \$2000. The "Y" country figure is four times greater than that for country "X".

21. Now let us assume that the part of the total income spent on essentials in country "X" comes to 80 per cent, and in country "Y" to only 60 per cent. Eighty per cent of \$500 is \$400, while sixty per cent of \$2000 is \$1200 or three times \$400. Thus, if we base the comparison only on income spent on essentials, the disparity no longer is 4 to 1. It falls 3 to 1.

(4) Diminishing Utility of Income Components

22. The national income figures of a developed country, as also those of all developing countries, value, let us say, the twenty-first item of a consumer article acquired by one of its citizens the same as an equally priced first article of the same consumer article, ignoring the diminishing want-satisfying power of successive items of the given consumer article acquired. A poor person from a developing country may acquire two items of the given consumer article a year, compared to twenty added to his wardrobe by a citizen of a developed country - a ratio of one to ten. But, if the law of diminishing utility is valid, the total economic utility of twenty items acquired by the citizen of the developed country is not ten times greater than that of the two items acquired by the poor person in the developing country.

(5) Unevenness of Income Distribution

23. Per capita national income estimates do not take into account differences in the evenness of the distribution of income. Owing to the limited size of the middle class in developing countries, a larger percentage of the national income goes to a smaller percentage of the population than in developed countries. This in turn means that a higher percentage of the individuals in developing countries receive incomes below the median than in developed countries. The developed country per capita income figure therefore comes closer to reflecting the welfare of the average developed country inhabitant than does the corresponding figure in a developing country.

24. This weakness tends to make the gap in living levels between a developing country and a developed country appear narrower than it actually is. Since in developing countries a larger segment of the population receives a smaller slice of the national income, the per capita incomes of the majority of their inhabitants are lower than the national average, which means that their individual real incomes fall below that of the average developed country inhabitant by an even greater margin.

III. SYNTHETIC OR COMPOSITE INDICATORS  
OF CAPACITY TO PAY

25. It is often suggested that in order to overcome the inadequacies of per capita national income as an indicator of the level of living of the population or a country's capacity to pay, a number of other indicators should be combined with

per capita national income to yield a single synthetic or composite indicator. The eligible indicators include those which refer to health, including demographic conditions; food and nutrition; education, including literacy and skills; conditions of work; employment situation; aggregate consumption and savings; transportation; housing, including household facilities; clothing; recreation and entertainment; social security; human freedoms.

26. A number of scholarly studies have been carried out in this field. Both economic and social indicators have been used in these studies. Economic indicators include proportion of gross domestic product originating in manufacturing, proportion of the labour force engaged in non-agricultural activities, number of telephones per capita, level of energy consumption per capita, steel consumption per capita, cement production per capita, motor vehicles per capita, per capita fiber consumption, exports per capita. Social indicators include physicians and dentists per capita, number of infant survivals per 1,000 births, newspaper circulation per capita per day, radios per capita, post-primary school enrolment, literacy, proportion of protein in the diet, food consumption per capita - daily calorie intake.

27. The Committee on Contributions, at its twenty-ninth session in 1969, undertook a detailed examination of the relative ranking of Member States on the basis of criteria selected for the purpose of the study. The purpose of the Committee's examination was to enable it to differentiate between "developed" and "developing" countries. The criteria chosen for this study, other than per capita national income were: per capita energy consumption, per capita food consumption - daily calorie intake, percentage of gross domestic product originating in manufacturing, percentage of economically active population in non-agricultural activities, number of infant survivals per 1,000 births, number of physicians per 1,000 inhabitants. In evaluating the results of this examination it became clear that, although the establishment of a dividing line between "developed" and "developing" countries would be possible, the issue still raised serious difficulties, since there was no general agreement as to the choice of indicators for this purpose.<sup>3/</sup>

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<sup>3/</sup> Official Records of the General Assembly, Twenty-fourth Session, Supplement No. 11, document A/7611, para. 30.



28. In general, expert opinion holds that there is no satisfactory method at present of statistically combining existing indicators of health, education, employment, etc. into a single comprehensive indicator. The United Nations Expert Group on Welfare-oriented Supplements to the National Accounts and Balances and Other Measures of Levels of Living which met in New York from 22 to 26 March 1976 agreed that level of living is a complex concept which - certainly at present - is not susceptible to measurement as a single numerical aggregate in internationally comparable terms. The Group did not, therefore, recommend the setting up of international standards for compiling such a measure, in money or in any other unit of account. <sup>4/</sup>

29. The totality of resources annually available to the community would, however, in some sense be a relatively comprehensive indicator of the determinants of the level of living as a whole. Such a totality of annual resources may be expressed in terms of a single monetary figure representing the national income of the country. Therefore, in spite of all the reservations attached to the aggregate of national income enumerated earlier in this paper, it is the only single indicator which can be statistically compiled for all countries.

#### IV. STATISTICAL WEAKNESSES OF INTERNATIONAL COMPARISONS AMONG COUNTRIES BASED ON NATIONAL INCOME

##### (1) Exchange Rate Disparities

30. International comparisons of income levels based on conversions by exchange rates have a number of limitations. In order to produce reasonably correct results, it would be essential for the average relationship of the internal purchasing power of currencies to be the same as the exchange rates used to convert the national incomes to common currency units. There are many reasons why it is often difficult to achieve this equivalence.

31. For this equivalence to prevail, even for goods and services which can be internationally traded, it would be necessary for a long-term equilibrium in

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<sup>4/</sup> Report of the Expert Group on Welfare-oriented Supplements to the National Accounts and Balances and Other Measures of Levels of Living, New York, 22-26 March 1976 (ESA/STAT/AC.4/5), para. 9(a).

exchange rates to exist. In view of the devaluations and revaluations of the currencies of a number of countries during the period under review and also in view of the possibility of official intervention by Governments in the functioning of the floating exchange rate system, this can hardly be said to be the case. An attempt is sometimes made to overcome this difficulty by starting with the exchange rate in a period which appears closer to a free market equilibrium and computing the purchasing power parity to the period required on the basis of relative changes in the price indices of the countries being compared. While this refinement may adjust exchange rates in the direction of their presumed equilibrium position, it is still short of the goal of establishing appropriate purchasing power relationship of currencies in view of the reservations indicated below.

32. The equivalence, still for internationally traded goods, between the relationship of internal prices and exchange rates, is prevented also by barriers to trade in the form of tariffs and transportation costs.

33. Even if the relation of prices of internationally traded goods were approximately the same as exchange rates, the final prices to domestic buyers would certainly differ widely because of differences in the margins added for net indirect taxes, domestic processing, internal transportation and distribution costs.

## (2) Non-market income

34. National income estimates, with few exceptions, reflect only market income, i.e. transactions that take place accompanied by an exchange of money, in contrast to non-market transactions where real income may be given or received without a disbursement of money.

35. "Productive" (or "economic") non-market activities are those which may be regarded as being, at least in principle, substitutable for the purchase of goods and services in the market. There are in practice two major categories. First come the production of food and certain other goods for consumption in the producer's household. This production, together with an imputed gross rental value for owner-occupied dwellings, has long been included in most national income estimates for both developed and developing countries and is recommended for inclusion according to the System of National Accounts (SNA). In the national accounts for developing countries, it appears to represent on average - with very large variations - about

one-sixth of total national output. In the most industrialized countries, the proportions are naturally smaller for own-account food production, but larger for owner-occupied rentals.<sup>5/</sup>

36. The second major category has always been much more controversial. This is the value of unpaid services performed within the household. The coverage is, again uncertain. The main element (and the classical example in the controversy) is of course the unpaid services of full-time housewives; but the boundary should logically be extended to housework (and garden work) of men and women in paid employment and include house maintenance and improvement. It may also include a variety of other self-service operations which are alternatives to market activities. The work of students may be covered to the extent that studying is an alternative to paid employment; so may volunteer activities for public and other organizations or social work. Private car driving, so far as it is an alternative to using public transport, could be a candidate. Even on fairly restrictive definitions, these household productive activities can make a substantial addition to gross domestic product in developed countries.<sup>6/</sup>

### (3) Understatement of Income

37. In a number of countries national incomes are understated, a consequence of the fact that private individuals, unincorporated enterprises and corporations understate incomes when reporting them to the government. When a taxpayer understates his income to reduce tax liability, he will as a precaution also tend to understate income in any reports to his government he may be called upon to make for statistical purposes. For this reason, sources other than income tax records which contain income information would suffer from a similar weakness.

38. In addition to evasion of income declaration, in a number of instances a large element of income understatement is unintentional. Many non-market incomes go unrecorded because no currency changes hands. But, in addition, many market transactions, even when accompanied by an exchange of currency, likewise go unrecorded owing to lack of personnel and of established procedures to achieve such recording.

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<sup>5/</sup> "Economic Statistics, System of National Accounts and Balances. The feasibility of welfare-oriented measures to complement the national accounts and balances." Report of the Secretary-General (E/CN.3/477), para. 29.

<sup>6/</sup> Ibid., para. 30.

39. It is often a difficult undertaking to make approximations or even guesses to restore this element of understatement of income. Where pertinent information is lacking, attempts must be made to fill the gaps; and pending the availability of the requisite data, indirectly related information or rough assumptions may have to be employed.

40. The inadequacy in many respects of the basic statistics in the developed countries suggests the magnitude of the problem confronting the less developed countries. So far as concerns industrial production and prices, domestic trade, personal services, costs of production, stocks of commodities, profits and other incomes, local government activities, etc., only fragmentary information is usually available. Censuses of population and especially of business establishments are infrequently carried out, and the restricted scope of government in such areas as social security and fiscal administration results in a dearth of statistics in these fields. Furthermore, sample investigations, special studies, reports by trade associations and the like, which in the developed countries help to fill in gaps in statistical knowledge, are uncommon in the less developed countries.<sup>7/</sup>

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<sup>7/</sup> Methods of National Income Estimation (Provisional Issue), Studies in Methods, series F, No. 8 (United Nations publication, Sales No. 55.XVII.5), p. 5.